Tuberculosis

. . and . .

Cow's Milk.

A Criticism of the Royal Commission Report.

...BY...

WALTER R. HADWEN,

M.D., L.R.C.P., M.R.C.S., Etc.

PUBLISHED BY

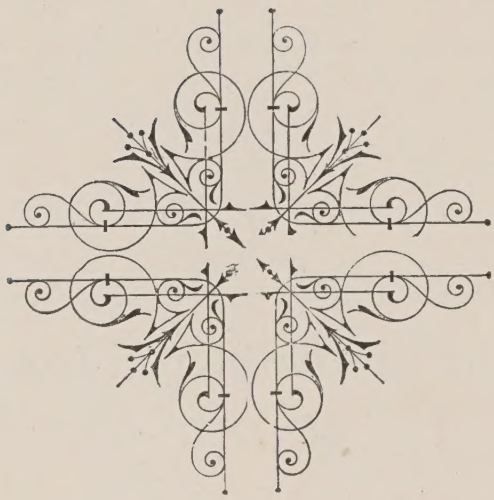
THE BRITISH UNION for the ABOLITION of VIVISECTION,

32 CHARING CROSS, S.W.

Secretary: Miss B. E. KIDD, to whom all orders may be sent.

F. J. BROOKE, PRINTER, GLOUCESTER. 12494

[ca. 1910]



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Tuberculosis and Cow's Milk.

A Criticism of the Royal Commission Report.

By WALTER R. HADWEN,

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THERE is supposed to be an art in "making books." There is a decided art in "making reports." The science connected with these accomplishments is not so apparent as the art; and the more "scientific" the subject is supposed to be, the less science, as a rule, is manifested in the manner in which the official report of it is drawn up. The latest example is no exception to the rule. The Second Interim Report of the Royal Commission on Tuberculosis presents one of the most remarkable specimens of sheer padding that has ever been laid before the public. There is practically nothing in it, and the £48,000 which this precious Commission has cost might as well have been thrown into the sea. It would have been better, in fact, that the money should have been got rid of in that way, for the

gentlemen who have wasted their time in this absurd "research work" could have been better occupied, and the menagerie of sensitive creatures which have been submitted to their ghastly "pin-pricks" would have been saved the subsequent torture to which they were victimised.

And what is it all about? The Commissioners put it thus :—

> The bacillus of human tuberculosis was considered as identical with the bacillus of bovine tuberculosis At the International Medical Congress held in London in 1900, Koch brought forward the view that bovine and human tuberculosis were quite distinct. He asserted, as the result of his experiments and inquiries, that the bacillus of human tuberculosis was unable to give rise to tuberculosis in the ox, and maintained that bovine tuberculosis could not be the cause of tuberculosis in man.

So, like all up-to-date scientists whose very existence seems to depend upon contradicting one another, the English confreres of the German savant determined to show that Koch was all wrong. And they seem to think they have so far succeeded, although statistics of tuberculosis in human subjects have yet to be furnished in a further report, and a few more thousands will probably have to be squandered before the matter is finally settled to everyone's satisfaction. The English savants will, no doubt, by that time have succeeded, as usual, in quarrelling among themselves.

The Fallacy of the Tubercle Bacillus.

The opening sentence of the Report proclaims the fallacy upon which the whole superstructure is built :—

The term tuberculosis means the changes taking place in the animal body when it is invaded by the organism called the "tubercle bacillus."

Hence, the chief point, they consider, they are called upon to settle is :—

Whether the tubercle bacillus which causes tuberculosis in man is one and the same as the tubercle bacillus which causes tuberculosis in animals other than man.

But the Commissioners do not appear to have been asked to proceed upon these lines at all. Their inquiry was to be :—

1. Whether the *disease* in animals and man is one and the same.
2. Whether animals and man can be reciprocally infected with it.
3. Under what condition, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favourable or unfavourable to such transmission.

These questions have not been answered.

If, however, the Commissioners' own idea as to what was required of them was the correct one, it was surely incumbent upon them to prove, in the first place, that the tubercle bacillus really *did* cause "tuberculosis." It has certainly never been proved yet. All are prepared to admit that tubercle bacilli may be found in certain stages of the disease, but Koch himself has never yet proved to demonstration that these micro-organisms "caused" it. And many of us are of opinion, on physiological and pathological grounds, that the tubercle bacillus is far more likely to be a result of the disease than its cause, and that instead of being a foe to the morbid tissue, it is more than probable a friend.

The Report, then, is based and built up upon a generally accepted and unproved theory, and the

fallacy of this runs through the whole of the 97 pages of the Blue-book.

If the tubercle bacilli could have been separated from the morbid material upon which they thrive (an utter impossibility), there might be some ground for the dogmatic assertions which are indulged in. But this is not attempted, and when we read of the tubercle bacillus being "introduced into the animal used for experiment in the form of an *emulsion of tuberculous lesions,*" the utter absurdity of the position becomes apparent. Even in the case of "a culture grown on an artificial medium and suspended in an innocuous fluid" it is still the transference of the bacillus *plus* its morbid environment. We are not surprised to read that "as a rule, emulsions are much more effective than cultures"—simply because they contain more diseased matter. It is a significant fact, which the Commissioners acknowledge on page 8, that emulsions containing a smaller quantity of bacilli produced as a rule worse results than cultures containing a much larger quantity. The morbid material is evidently much more potent in its effects than the bacilli

Even in feeding experiments, where calves were allowed to suck the teats of cows, it was in cases where the udders had been actually made tuberculous first of all by being injected with tuberculous matter. Thus, throughout the experiments, there is no evidence that the tubercle baccillus *per se* was the *fons et origo* of the induced disease.

The Fallacy of Tuberculin.

Another fallacy consisted in the use of tuberculin with which all the animals were first of all tested in order to make sure that they were not tuberculous. Although the absolute unreliability of this test has been proved again and again, its diagnostic infallibility is taken for granted by the Commissioners, just for all the world as if its imaginary virtues had never been called in question. The Report first gives a description of the results of inoculating bovine tuberculosis into bovines, and very horrible reading it is, the details of suffering undergone by the poor creatures deliberately diseased is sickening. Then follows a description of the effects of introducing bovine tuberculosis into guinea-pigs, rabbits, pigs, goats, dogs, cats and kittens, rats, monkeys, hedgehogs and anthropoid apes, and the number of "bacilli" which were supposed to be introduced in some cases is carefully reported. In certain instances the number reaches, on "rough calculation," to 10 millions, 20 to 25 millions, 50 millions, and even 250,000 million bacilli! All this is very funny!

And the Commissioners came to the solemn conclusion that if they pumped enough bovine tuberculous matter into almost any animal, tuberculosis of some sort was practically certain to result! What a discovery! It takes fourteen pages of closely printed matter, and any number of revolting experiments, in order to record this simple fact. A man who does this sort of thing is "a scientific man," and the stuff

that he retails is called "science."

The next series of recorded experiments was with tuberculous matter taken from human subjects. Similar processes were gone through with emulsions and cultures, and we are seriously told, for instance, "that material passed through the body of a guinea-pig has been injected into the udder of a cow, and the result has always been tuberculosis of the udder"! And so on, on all sorts of animals for four more pages.

Heifers and calves were fed with the sputum of cases of phthisis, obtained from a hospital, for 200 and 300 days at a stretch, and they "must have received into the alimentary canal a very large number of bacilli"; and the effects of the human tubercle bacillus were found to be identical with those of the bovine, although in some instances "less virulent"; all of which is put down to the respective powers of the bacilli. Small differences in the action upon rats and mice assist the authors in padding their report, and at the conclusion of twenty-two pages of similar worthless verbiage they pass on to consider the tubercle bacillus itself.

Five pages are occupied with detailing the well-known methods of cultivating the bacilli on different media, and after the mountain has laboured with evident pain and anxiety, this curiously original conclusion is arrived at :

The bacillus of tuberculosis is a simple organism with scanty microscopical features, growing with varying ease or difficulty on various media.

This would do for "Alice in Wonderland"!

Then follows a dreary repetition of all this balderdash under the heading of "Bovine and Human Tuberculosis Compared," and by the time this is concluded, three-fourths of the official report has been written up.

Science and Caution.

Brief accounts follow of specific cases where scrapings from lupus, mesenteric glands, knee joints, &c., were passed into different animals, and then from animal to animal, and explanations are vouchsafed as to why some cases differed from the other in virulence, about which the man-in-the-street could give a satisfactory and decided answer in five minutes for nothing, although it takes a scientist more than six years at the price of £48,000 to say: "On account of the far-reaching bearings of the conclusion we are unwilling to make any statement at all premature." That manifests a certain amount of wisdom at all events. The man-in-the-street would have said: "The more disease material is pumped into an animal's body, and the less that animal is able to resist it, the worse will be the result, and *vice versa*."

We reach the last page. The fatal dogmatism and ready acceptance of popular theories by men who reason only from laboratory experiments, and who practically disregard clinical data, is seen in paragraph 64 :—

> It is well-known [*sic*] that in the case of many diseases caused, like tuberculosis, by a micro-organism, immunity against the disease may be secured by introducing into the body the micro-organism causing the disease. . . . Hence, if the baeillus of human tuberculosis can be used to confer immunity against bovine tuberculosis, or *vice versa*, we are supplied with a further proof [*sic*] of the identity of the two diseases.

This is how scientific men argue! One begins to feel ashamed of the very name of science, when one finds that any theory, however shallow, however proofless, if only advertised with sufficient audacity, finds ready acceptance in the highest ranks; such

theory is sufficient to form a basis for the building up of endless conjectures. "Positive results," we read, "have already been obtained by various observers" as to the theory propounded in above extract, but the Commissioners go on to say: "We are not yet in a position to state the results which we have obtained." But if "positive results" have already been secured, why should the experimenters be allowed to go on dipping their hands into the public purse and torturing innocent animals to still "further prove" the ridiculous theory which, after six years of child's play, they have left in the same chaotic condition as before they began?

The Dogmatic Conclusion.

The "conclusion" arrived at is a follows:—

> There can be no doubt but that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the direct result of the introduction into the human body of the bacillus of bovine tuberculosis; and there can also be no doubt that in the majority, at least, of these cases the bacillus is introduced through cow's milk.

I search in vain throughout the whole report and all the forty pages of "Memorandum" which follow, to find a single proof of this dogmatic statement. It continues:—

> A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli.

Again, I say, the Commissioners have vouchsafed no proof whatever of their statement, and to base such a conclusion upon the absurdities which crowd these dreary pages is an insult to the intelligence of the public which has to pay heavily for the compilation of such monstrosities as this report of the Tuberculosis Commission.

If the Commissioners could have given definite instances of undoubted tuberculosis commencing

primarily in the intestinal canal of children who had been fed upon milk which could be definitely traced to cows which were proved to be tuberculous, we should have had some scientific data to go upon. But no attempt is made in this direction. It is true the Commissioners inform us that they are going to deal in a future report with a large number of records they have received from hospitals concerning the "apparent primary seat of the disease in patients who died from tuberculosis, or in whom evidence of this disease was found after death," but they admit that—

> The value of the information thus obtained has not been so great as had been hoped, owing to the fact that in the majority of hospitals the post-mortem records do not appear to have been made in such detail as would enable an opinion to be formed as to the age of the tuberculous lesions.

Hence, even the forthcoming final report is likely to be as valueless as its predecessors, and will fail to provide the only satisfactory evidence upon which a scientific conclusion could possibly be based.

So fixed is the mind of the Commissioners upon the bacteriological method of investigation that they can find no space for discussing the "conditions" and "circumstances favourable or unfavourable to the transmission" of tuberculous disease.

A fallacy underlies the whole report, in that the Commissioners start with a pre-conceived idea, and every experiment is conducted with a view to substantiate the correctness of that idea. This is not science. If the premises are wrong, the conclusions, however elaborate in detail, or however complicated and painstaking in their presentation, must be wrong too.

How Infection is Carried.

The alleged practical issue of all this torture of living animals is as to the question of the purity of the milk supply and its bearing upon public health.

Now, the disease known in these days by the name of "tuberculosis," called in old-fashioned times "consumption," is supposed to be, as already pointed out, due to an organism termed the tubercle bacillus. Without discussing further this unproved assumption, it is enough to say that the poison, whatever it may be, must be conveyed into the system in one of two ways : either by means of air during the process of breathing, or by means of food through the mouth. If the infection be conveyed by the air, the lungs may be affected ; if by means of food, the alimentary canal may suffer.

In either of these cases the poison is taken up by the lymphatic vessels and conveyed to the nearest glands, which temporarily arrest its progress ; they become swollen and diseased, and as the disease advances, the poison is carried into the surrounding portions of the system. Supposing the poison were conveyed by the air tubes into the lungs, the glands in the chest would become affected ; but if the poison were received by food into the stomach, then the glands of the abdomen become affected ; so by means of vitiated air one might get consumption of the lungs, and by means of vitiated food one might get consumption of the bowels.

Now it is a common thing for a person who has reached the third stage of tuberculosis of the lungs to swallow the poisonous expectoration into the stomach, and thus set up a secondary disease in the alimentary canal. Without careful thought it might be hastily declared that such patient died from consumption of the bowels, and the cause would be put down to the food he had taken, and the blame concentrated upon diseased meat or milk ; whereas the true cause was consumption of the lungs, consequent upon the impure air which the sufferer had in the

first place breathed. How, then, is this to be proved ?

Right Method of Investigation.

There is but one way, namely, by *post mortem* examination. The point would be to ascertain which part of the body was first attacked. If the glands of the abdomen were first attacked, they would prove to be much more advanced in disease than those in the chest; if the chest glands were the primary cause of the mischief, they would be much more advanced than those in the abdomen. The Commissioners confess that the hospital records in their possession have been so inefficiently kept that this, the only satisfactory method of solving the problem of origin in each particular case of disease, cannot provide them with definite proof upon the subject; and it strikes me that even if the pathological condition of these cases had been carefully noted, the evidence would still have been incomplete, for it is questionable whether the details of the environment of the patient, and of the food which had been partaken of and the source of the milk supply would have been carefully noted beforehand.

Some nine years ago when a tremendous tuberculosis scare was created, and when newspapers, birds, cats, mice, flies, were all charged with being purveyors of the dreaded tubercle bacillus—probably a very harmless creature after all—Sir William Broadbent made the alarming statement that 70,000 persons died annually in Great Britain from tuberculous complaints contracted either from infected meat or infected milk. His conclusion rested upon the basis of statistics, which, if not carefully handled, may prove quite as misleading as experiments on living animals. Sir William Broadbent's statistics were culled *en bloc* from the Registrar General's reports without any attempt to prove by *post mortem*

examination whether the alarming conclusions he had come to were borne out by scientific facts. The figures were probably, for the most part, the results of an incorrect diagnosis by medical men concerning children who had been killed, not by impure milk, but by not having enough milk, and who had been fed, like scores that I have seen, from earliest infancy upon potatoes, fat bacon, bits of sausages, white bread pap, and a host of other unsuitable foods, besides being surrounded by an atmosphere which only the hardiest could survive. In such cases a doctor would be called in probably at the last moment; he would see a poor little emaciated creature in front of him suffering from diarrhœa, (which is nature's way of getting rid of the indigestible messes,) and straightway the case would be certified as Tabes Mesenterica, or consumption of the bowels. It has been a common remark in children's hospitals long before the fashionable fad of "sterilized milk" was thought of, that such children, who, had they died, would have been certified as dying from consumption of the bowels, while milk would have been credited with the cause of death, begin to thrive directly they are taken from their parents and homes and fed upon plenty of cow's milk in the purer atmosphere of a hospital ward.

Air, Not Food, Responsible.

Now this very subject formed the ground of most careful independent investigation years before the Royal Commissioners began their unsatisfactory operations, from which they do not appear to have profited. As long ago as 1894 Dr. Walter Carr, Physician to the Victoria Hospital for Children, a most painstaking observer, published a report of a large number of *post mortem* examinations he had conducted on the bodies of children who had died of

tuberculosis, and he found in the vast majority of cases that the disease commenced in the chest glands and not in the abdomen, showing that air, not food, was responsible for the mischief, and, further, he found that consumption of the bowels was very rare in children under two years old, and that it was practically unknown in children under one year; an age when, if at all, the effects of tuberculous milk should be apparent, seeing that, apart from the maternal supply, children of such tender months are largely dependent upon cow's milk. He said he had notes of a hundred cases of *post mortem* examination which were supposed to be consumption of the bowels, and in only one instance was any tuberculosis present.

Dr. Coleman, of the Children's Hospital, Great Ormond Street, London, has also added his testimony arrived at by similar means, that as a rule the chest glands were much more advanced in disease than those of the abdomen. Dr. Guthrie, Physician and Physiologist to the Children's Hospital, Paddington Green, has also placed upon record that he had no faith in the popular tuberculous cow's milk theory, and his records of *post mortems* did not bear out the results pointed to in the Registrar General's returns. Kempner, a German scientist, has also declared that tuberculosis in children invariably commences in the bronchial glands; and Comby has stated, as the result of numerous *post mortem* examinations, that the breathing tract was always the starting point of tuberculosis, and not the bowels. Dr. Emmett Holt has published statistics of no less than 240 cases, and in only one case out of the whole did disease appear to have started in the intestinal glands; and there was no proof even in that one case that milk had caused it. In a careful examination of statistics of *post mortem* investigations conducted at the Bristol

Royal Infirmary during a period of five years, it was found that there had only been one case of consumption where infection appeared to have taken place through the alimentary canal.

Milk of Tuberculous Cows.

It is a fact that a cow may suffer seriously from tuberculosis and yet no tubercle bacilli be found in its milk. They only appear to be found when there are tuberculous glands upon the cow's udder. As an instance of the harmlessness of milk even from tuberculous cows I may quote an interesting story given by Dr. Holt in *The Medical News* some few years ago. Near a large American city was a stock farm of Jersey cows, which supplied milk to a large number of the wealthiest families in the city for a period of ten years. It was suspected that many were tuberculous, and 45 per cent. were killed and submitted to a post mortem examination, and in every case the cattle so examined were found to be diseased. And yet of the many hundreds of children who had taken the milk during the ten years, in only one had tuberculosis developed ; and in that case it was not clear that milk was responsible. The employees about the farm had also for several years drunk skimmed milk in large quantities as a beverage in the place of water, but not one developed tuberculosis.

To deliberately feed animals with food mixed up with the sputum of tuberculous patients or with the results of ground-up tuberculous glands, or to inject similar tuberculous messes into the bodies, the lungs, or the udders of cows, can provide no correct guide as to comparative results obtaining in human beings under the quite different conditions of natural infection Of course it stands to reason that animals from whom milk is derived for human consumption

should be as far as possible healthy. Absolute health in cows can no more be insured than absolute health in human beings, unless they come of a good stock and the conditions of living are such as to ensure the highest order of well-being. To test animals for consumption by the injection of tuberculin, which no physician with a reputation to lose would now dare to carry out on a human subject, and to "sterilize" the milk under the supposition that tubercle bacilli are most probably present, are fallacious methods which begin at the wrong end.

The Real Remedy.

The true remedy for the mischief is to have a periodical examination of the dairies and of the cow's udders, from which milk is supplied to a community. Cows are affected by similar unhealthy conditions to those which affect the human race. A register should be kept of all dairies supplying milk to the city, and sufficient breathing space and proper ventilation demanded; a plentiful supply of clean water instead of the filthy, muddy pools from which cattle are so frequently forced to draw their supply, should be insisted upon by every municipal authority. Clean and well drained floors and healthy, well-ventilated byres should be provided, and there should be compulsory living in the green fields instead of in pent-up, unsuitable town sheds, whenever climatic conditions are suitable.

But equally if not more important even than the condition of the cows supplying milk and their environment is the condition and the environment of those who drink it. In studying statistics of deaths from consumption it will be found that the cases occur for the most part among the working class population, whose cramped dwellings and surroundings, and possibly occupations, are sufficient to indicate

the cause. But the better class population, who enjoy better ventilated homes and have larger air-space lead comparatively charmed lives so far as consumption is concerned. And the moral is this: Bacteriologists would do well to walk outside their laboratories, and leave their syringes, and the filthy emulsions and cultures behind them, and cease for awhile the conversion of innocent living animals into chemical test tubes, and just visit some of the farms where tuberculous cows are bred and the slums where tuberculous children are reared, they would learn more in six hours of solid fact as to the origin and transmission of tuberculous disease than they will ever learn from six or even sixty years of their present methods of research. We must let more sunshine and more fresh air into the homes of the working population. We must improve the conditions under which they live, and must carry on the work of better sanitation and hygiene. Let us get rid of back to back houses; advocate wider streets; abolish blind alleys and stuffy courts; prevent over-crowding; advise open windows and bodily and household cleanliness; prove to the people that the simplest and cheapest food is the most nutritious, and show them how to cook it. When we have done this we shall have gone a long way towards banishing consumption from our midst, a good deal less nonsense will be talked about the tubercle bacillus, and much less public money wasted upon a handful of scientists who ought to be spending their time elsewhere in investigating the conditions which cause the disease. The methods above suggested are certainly saner than that of spending £48,000 without the return of a single coin of scientific fact or useful knowledge; and infinitely superior to that of wasting years of valuable time in torturing innocent creatures without even the prospect of the remission of a single day of suffering for the human species in the future.

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